

Attorney Docket No. 1328

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Joseph Kevin Gogerty

Date: February 28, 2003

Serial No.: 09/758,867

Group Art Unit: 1638

Filed: January 11, 2001

Examiner: David T. Fox

For: "INBRED MAIZE LINE PH7CH"

Assistant Commissioner for Patents
Washington, D.C. 20231-RULE 132 DECLARATION
OF
DR. DINAKAR BHATTRAMAKKI

Sir:

I, Dinakar Bhattramakki, Ph.D., do hereby declare and say as follows:

1. I am skilled in the art of the field of the invention. I have a Ph.D. in Plant Molecular Genetics from the University of Illinois at Urbana-Champaign. I have a Bachelor of Science degree in Agricultural Sciences from the University of Agricultural Sciences, Bangalore, India. Since 1997 I have been engaged in the analysis of molecular markers for plants. I have supervised the Molecular Marker Applications lab at Pioneer Hi-Bred International, Inc. from January 2002 until the present.
2. I am familiar with the methods used in the analysis of Simple Sequence Repeat, SSR, marker data for inbred PH7CH conducted at Pioneer Hi-Bred International, Inc. The analysis of the SSR profile of inbred PH7CH may be accomplished without any undue experimentation. The SSR profile for inbred PH7CH is attached hereto.
3. Means of performing this genetic marker profile are well known in the art. SSRs are genetic markers based on polymorphisms in nucleotide sequences. The PCRTM detection of SSRs is accomplished by using two oligonucleotide primers flanking the polymorphic segment of DNA. Amplification is accomplished through repeated cycles of heat denaturation of the DNA followed by annealing of the primers to their complementary sequences at low temperatures, and extension of the annealed primers with DNA polymerase.
4. Markers are scored following amplification and gel electrophoresis of the amplification products. Scoring of marker genotype is based on the size or weight of the amplified

Appendix E

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fragment. While variation in the primer used or in laboratory procedures can affect the reported marker score, relative values remain constant regardless of the specific primer or laboratory used.

5. Primers that may be used to identify the SSR markers reported herein are publicly available and may be found in the Maize DB on the World Wide Web at agron.missouri.edu/maps.html (sponsored by the University of Missouri), in Sharopova et al. (Plant Mol. Biol. 48(5-6):463-481) and/or in Lee et al. (Plant Mol. Biol. 48(5-6):453-461).

Markers shown for PH7CH are the publicly available markers in the sources listed above for which PH7CH was tested and shown to be homozygous.

6. Map information is provided by bin number as reported in the Maize DB. The bin number digits to the left of decimal point typically represent the chromosome on which such marker is located, and the digits to the right of the decimal typically represent the location on such chromosome.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: February 28, 2003

By: 

Dinakar Bhattaramakki

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| Marker Public Name | Bin # | PH7CH base pairs |
|-----------------------|-------|---------------------|
| phi427913 | 1.01 | 129.38 |
| bnlg1014 | 1.01 | 124.16 |
| phi056 | 1.01 | 255.30 |
| bnlg1083 | 1.02 | 221.86 |
| bnlg1127 | 1.02 | 112.28 |
| bnlg1953 | 1.02 | 247.56 |
| bnlg1429 | 1.02 | 204.64 |
| bnlg1627 | 1.02 | 202.70 |
| phi109275 | 1.03 | 142.91 |
| phi339017 | 1.03 | 145.56 |
| bnlg1203 | 1.03 | 308.35 |
| bnlg1484 | 1.03 | 135.90 |
| bnlg2086 | 1.04 | 219.49 |
| bnlg1886 | 1.05 | 141.48 |
| bnlg1057 | 1.06 | 274.00 |
| bnlg1041 | 1.06 | 240.52 |
| bnlg1556 | 1.07 | 203.76 |
| phi323065 | 1.08 | 329.53 |
| phi335539 | 1.08 | 88.58 |
| phi423298 | 1.08 | 133.68 |
| phi002 | 1.08 | 73.53 |
| bnlg1331 | 1.09 | 121.03 |
| phi011 | 1.09 | 226.98 |
| phi308707 | 1.10 | 131.11 |
| phi227562 | 1.11 | 306.93 |
| phi265454 | 1.11 | 234.33 |
| phi084 | 1.11 | 94.65 |
| phi402893 | 2.00 | 218.34 |
| phi96100 | 2.01 | 284.43 |
| bnlg1017 | 2.02 | 175.37 |
| bnlg2277 | 2.02 | 292.29 |
| bnlg1064 | 2.03 | 200.92 |
| bnlg1018 | 2.04 | 134.33 |
| bnlg1909 | 2.05 | 304.05 |
| bnlg1138 | 2.06 | 222.14 |
| bnlg1396 | 2.06 | 136.79 |
| bnlg1831 | 2.06 | 193.90 |
| phi251315 | 2.07 | 123.79 |
| phi328189 | 2.08 | 115.47 |
| phi435417 | 2.08 | 217.99 |
| bnlg1141 | 2.08 | 152.92 |
| bnlg1940 | 2.08 | 214.68 |
| phi127 | 2.08 | 109.62 |
| bnlg1520 | 2.09 | 285.85 |
| phi101049 | 2.10 | 226.43 |

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| | | |
|-----------------|------|--------|
| phi453121 | 3.00 | 223.43 |
| phi104127 | 3.01 | 162.19 |
| phi404206 | 3.01 | 300.24 |
| phi374118 | 3.02 | 225.95 |
| bnlg1144 | 3.02 | 115.08 |
| bnlg1647 | 3.02 | 137.52 |
| bnlg1523 | 3.03 | 264.89 |
| bnlg1019 | 3.04 | 155.02 |
| bnlg1113 | 3.04 | 128.41 |
| bnlg1452 | 3.04 | 125.59 |
| bnlg1035 | 3.05 | 112.85 |
| phi053 | 3.05 | 171.68 |
| phi102228 | 3.06 | 126.84 |
| phi072 | 4.00 | 141.56 |
| phi213984 | 4.01 | 284.60 |
| phi295450 | 4.01 | 197.12 |
| bnlg1162 | 4.03 | 126.15 |
| phi308090 | 4.04 | 218.64 |
| phi096 | 4.04 | 234.58 |
| phi438301 | 4.05 | 211.81 |
| bnlg1159 | 4.05 | 147.81 |
| bnlg1755 | 4.05 | 240.07 |
| bnlg1937 | 4.05 | 237.92 |
| bnlg1265 | 4.05 | 192.36 |
| bnlg2244 | 4.08 | 199.58 |
| bnlg1006 | 5.00 | 241.20 |
| phi396160 | 5.02 | 301.03 |
| phi109188 | 5.03 | 167.28 |
| bnlg653 | 5.04 | 156.23 |
| phi330507 | 5.04 | 131.59 |
| phi331888 | 5.04 | 130.72 |
| bnlg1208 | 5.04 | 134.77 |
| bnlg1892 | 5.04 | 147.78 |
| phi333597 | 5.05 | 216.51 |
| phi085 | 5.06 | 250.16 |
| bnlg1118 | 5.07 | 108.90 |
| bnlg1711 | 5.07 | 186.70 |
| phi423796 | 6.01 | 135.33 |
| phi389203 | 6.03 | 306.15 |
| phi452693 | 6.04 | 130.98 |
| phi445613 | 6.05 | 96.95 |
| bnlg1174 | 6.05 | 218.72 |
| phi299852 | 6.07 | 117.30 |
| phi364545 | 6.07 | 131.46 |
| bnlg1740 | 6.07 | 230.27 |
| bnlg1759 | 6.07 | 125.81 |
| phi070; umc1063 | 6.07 | 83.47 |
| phi034 | 7.02 | 119.55 |

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| | | |
|-----------|-----------|--------|
| bnlg2271 | 7.03 | 233.69 |
| phi328175 | 7.04 | 98.87 |
| phi051 | 7.05 | 138.57 |
| phi069 | 7.05 | 195.31 |
| phi116 | 7.06 | 164.92 |
| phi420701 | 8.00 | 291.88 |
| bnlg1194 | 8.02 | 174.99 |
| phi100175 | 8.03 | 144.28 |
| bnlg2082 | 8.03 | 172.52 |
| phi115 | 8.03 | 290.66 |
| phi121 | 8.03 | 93.90 |
| bnlg2046 | 8.04 | 326.12 |
| bnlg1176 | 8.05 | 251.69 |
| bnlg1152 | 8.06 | 148.42 |
| bnlg1065 | 8.07 | 239.09 |
| bnlg1056 | 8.08 | 110.49 |
| phi015 | 8.08 | 100.05 |
| phi233376 | 8.09 | 136.10 |
| bnlg2122 | 9.01 | 237.09 |
| bnlg1012 | 9.04 | 161.54 |
| phi032 | 9.04 | 231.00 |
| phi108411 | 9.05 | 126.04 |
| phi236654 | 9.05 | 117.08 |
| bnlg1375 | 9.07 | 164.93 |
| bnlg1129 | 9.08 | 300.56 |
| phi041 | 10.00 | 209.99 |
| phi059 | 10.02 | 143.60 |
| bnlg1079 | 10.03 | 172.22 |
| bnlg1655 | 10.03 | 126.51 |
| phi050 | 10.03 | 83.27 |
| phi301654 | 10.04 | 128.33 |
| phi062 | 10.04 | 157.81 |
| phi323152 | 10.05 | 144.53 |
| bnlg1074 | 10.05 | 183.85 |
| bnlg1185 | 10.07 | 151.61 |
| bnlg1450 | 10.07 | 201.21 |
| phi109642 | 2.03/2.04 | 148.23 |
| bnlg1720 | 1.09/1.10 | 236.44 |
| phi448880 | 9.06/9.07 | 186.11 |

#9 attach

What is an "Essentially Derived Variety"?

The concept of essentially derived variety was introduced into the 1991 Act of the UPOV Convention in order to avoid plagiarism through mutation, multiple back-crossing and to fill the gap between Plant Breeder's Rights and patents, gap which was becoming important due to the development of the use of patented genetic traits in genetic engineering.

An essentially derived variety is a variety which is distinct and predominantly derived from a protected initial variety, while retaining the essential characteristics of that initial variety.

As indicated as an example in the UPOV Convention, essentially derived varieties may be obtained by the selection of a natural or induced mutant, or of a somaclonal variant, the selection of a variant individual from plants of the initial variety, back-crossing, or transformation by genetic engineering.

The commercialization of an essentially derived variety needs the authorization of the owner of the rights vested in the initial variety.

- The concept of essentially derived variety does not at all abolish the Breeder's Exemption, as free access to protected plant varieties for breeding purposes is maintained. It is not a threat to biodiversity. On the contrary, it favors biodiversity, encouraging breeders developing and marketing original varieties.

Appendix F

UPOV Publication No. 644(E), Section 1

WWW.UPOV.ORG

INTERNATIONAL CONVENTION
FOR THE
PROTECTION OF NEW VARIETIES OF PLANTS

of December 2, 1961, as revised
at Geneva on November 10, 1972,
on October 23, 1978, and
on March 19, 1991

adopted by the Diplomatic Conference

on March 19, 1991

reproduced from UPOV Publication No. 438(E)

issue No. 63 of "Plant Variety Protection"

1991 Act of the Convention

Article 12
Examination of the Application

Any decision to grant a breeder's right shall require an examination for compliance with the conditions under Articles 5 to 9. In the course of the examination, the authority may grow the variety or carry out other necessary tests, cause the growing of the variety or the carrying out of other necessary tests, or take into account the results of growing tests or other trials which have already been carried out. For the purposes of examination, the authority may require the breeder to furnish all the necessary information, documents or material.

Article 13
Provisional Protection

Each Contracting Party shall provide measures designed to safeguard the interests of the breeder during the period between the filing or the publication of the application for the grant of a breeder's right and the grant of that right. Such measures shall have the effect that the holder of a breeder's right shall at least be entitled to equitable remuneration from any person who, during the said period, has carried out acts which, once the right is granted, require the breeder's authorization as provided in Article 14. A Contracting Party may provide that the said measures shall only take effect in relation to persons whom the breeder has notified of the filing of the application.

CHAPTER V
THE RIGHTS OF THE BREEDER

Article 14
Scope of the Breeder's Right

(1) [Acts in respect of the propagating material] (a) Subject to Articles 15 and 16, the following acts in respect of the propagating material of the protected variety shall require the authorization of the breeder:

- (i) production or reproduction (multiplication),
- (ii) conditioning for the purpose of propagation,
- (iii) offering for sale,
- (iv) selling or other marketing,
- (v) exporting,
- (vi) importing,
- (vii) stocking for any of the purposes mentioned in (i) to (vi), above.

(b) The breeder may make his authorization subject to conditions and limitations.

(2) [Acts in respect of the harvested material] Subject to Articles 15 and 16, the acts referred to in items (i) to (vii) of paragraph (1)(a) in respect of harvested material, including entire plants and parts of plants, obtained through the unauthorized use of propagating material of the protected variety shall require the authorization of the breeder, unless the breeder has had reasonable opportunity to exercise his right in relation to the said propagating material.

(3) [Acts in respect of certain products] Each Contracting Party may provide that, subject to Articles 15 and 16, the acts referred to in items (i) to (vii) of paragraph (1)(a) in respect of products made directly from harvested material of the protected variety falling within the provisions of paragraph (2) through the unauthorized use of the said harvested material shall require the authorization of the breeder, unless the breeder has had reasonable opportunity to exercise his right in relation to the said harvested material.

(4) [Possible additional acts] Each Contracting Party may provide that, subject to Articles 15 and 16, acts other than those referred to in items (i) to (vii) of paragraph (1)(a) shall also require the authorization of the breeder.

(5) [Essentially derived and certain other varieties] (a) The provisions of paragraphs (1) to (4) shall also apply in relation to

(i) varieties which are essentially derived from the protected variety, where the protected variety is not itself an essentially derived variety,

(ii) varieties which are not clearly distinguishable in accordance with Article 7 from the protected variety and

(iii) varieties whose production requires the repeated use of the protected variety.

(b) For the purposes of subparagraph (a)(i), a variety shall be deemed to be essentially derived from another variety ("the initial variety") when

(i) it is predominantly derived from the initial variety, or from a variety that is itself predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety,

(ii) it is clearly distinguishable from the initial variety and

(iii) except for the differences which result from the act of derivation, it conforms to the initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety.

(c) Essentially derived varieties may be obtained for example by the selection of a natural or induced mutant, or of a somaclonal variant, the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering.

Article 15

Exceptions to the Breeder's Right

(1) [Compulsory exceptions] The breeder's right shall not extend to

(i) acts done privately and for non-commercial purposes,

(ii) acts done for experimental purposes and

(iii) acts done for the purpose of breeding other varieties, and, except where the provisions of Article 14(5) apply, acts referred to in Article 14(1) to (4) in respect of such other varieties.

(2) [Optional exception] Notwithstanding Article 14, each Contracting Party may, within reasonable limits and subject to the safeguarding of the legitimate interests of the breeder, restrict the breeder's right in relation to any variety in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting,